The present disclosure generally relates to electronic cigarette components. As will be disclosed, an electronic cigarette may have a fully enclosed and continuous filter section that simulates the look of the filter of a traditional tobacco cigarette.
ELECTRONIC CIGARETTE CONFIGURED TO SIMULATE THE FILTER OF A TRADITIONAL CIGARETTE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This disclosure claims priority to U.S. Provisional Application Ser. No. 61/614,973, titled ELECTRONIC CIGARETTE ATTACHMENTS, COMPONENTS AND HOLDERS to Craig Weiss and Mark Scatterday that was filed on Mar. 23, 2012 and to U.S. Provisional Application Ser. No. 61/674,712 titled ELECTRONIC CIGARETTE CONFIGURED TO SIMULATE THE NATURAL BURN OF A TRADITIONAL CIGARETTE to Mark Scatterday that was filed on Jul. 23, 2012.

TECHNICAL FIELD

[0002] This disclosure generally relates to alternative smoking devices, and more particularly, to an electronic cigarette configured to simulate the filter of a traditional cigarette.

SUMMARY

[0003] This summary is provided to introduce a selection of concepts in a simplified form that are further described below in the DESCRIPTION OF THE DISCLOSURE. This summary is not intended to identify key features of the claimed subject matter, nor is it intended to be used as an aid in determining the scope of the claimed subject matter.

[0004] In accordance with aspects of the present disclosure, electronic cigarette components are presented. The disclosure presents an electronic cigarette configured to simulate the look and feel of the filter of a traditional cigarette.

[0005] In accordance with one embodiment of the present invention, an electronic cigarette is disclosed. The electronic cigarette comprises a conduit adapted to contain internal components of an electronic cigarette device; and a filter section located within a proximal end of the conduit; wherein the filter section comprises a porous material dimensioned to allow vapor passage; and wherein the porous material is continuous across an entire surface diameter thereof.

[0006] In accordance with another embodiment of the present invention, an electronic cigarette is disclosed. The electronic cigarette comprises a conduit adapted to contain internal components of an electronic cigarette device; and a filter section located within a proximal end of the conduit; wherein the filter section comprises a porous material dimensioned to allow vapor passage; wherein the porous material is continuous across an entire surface diameter thereof; wherein the porous material comprises an acidic fiber; and wherein the porous material directly contacts an interior surface of the conduit.

[0007] In accordance with another embodiment of the present invention, an electronic cigarette is disclosed. The electronic cigarette comprises a conduit adapted to contain internal components of an electronic cigarette device; and a filter section located within a proximal end of the conduit; wherein the filter section comprises: a housing inserted into the proximal end of the conduit; and a porous material positioned within the housing; wherein the filter section comprises a porous material dimensioned to allow vapor passage; wherein the porous material is continuous across an entire surface diameter thereof; wherein the porous material comprises an acidic fiber; and wherein the porous material directly contacts an interior surface of the conduit.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The novel features believed to be characteristic of the application are set forth in the appended claims. The novel features believed to be characteristic of the application are set forth in the appended claims. In the descriptions that follow, like parts are marked throughout the specification and drawings with the same numerals, respectively. The drawings figures are not necessarily drawn to scale and certain figures can be shown in exaggerated or generalized form in the interest of clarity and conciseness. The application itself, however, as well as a preferred mode of use, further objectives and advantages thereof, will be best understood by reference to the following detailed description of illustrative embodiments when read in conjunction with the accompanying drawings, wherein:

[0009] FIG. 1 is a side view of an electronic cigarette in accordance with one or more embodiments of the present invention.

[0010] FIG. 2 is a perspective view of a filter portion of an electronic cigarette in accordance with one or more embodiments of the present invention.

[0011] FIG. 3 is an exploded view of a porous material, housing, and conduit of an electronic cigarette in accordance with one or more embodiments of the present invention.

[0012] FIG. 4 is an exploded view of a porous material and a conduit of an electronic cigarette in accordance with one or more embodiments of the present invention.

DESCRIPTION OF THE DISCLOSURE

[0013] The description set forth below is intended as a description of presently preferred embodiments of the disclosure and is not intended to represent the only forms in which the present disclosure can be constructed and/or utilized. The description sets forth the functions and the sequence of steps for constructing and operating the disclosure. It is to be understood, however, that the same or equivalent functions and sequences can be accomplished by different embodiments that are also intended to be encompassed within the spirit and scope of this disclosure.

[0014] The present disclosure generally relates to electronic cigarettes. As will be disclosed, an electronic cigarette can have a conduit for protecting its internal components and a section ("filter section") insertable into a mouth of a user and having the physical appearance of a traditional cigarette filter. A number of advantages can be provided by the electronic cigarette components described herein. A number of additional advantages will become apparent from the description provided below.

[0015] Prior art alternative smoking devices can include a number of components consisting of a power source such as a battery, vaporizing unit, and a unit containing liquid that contains nicotine. The battery can be a pre-charged, disposable type of device that is not rechargeable or, alternatively, a rechargeable battery. Upon inhalation, negative pressure causes a sensor to activate the vaporizing unit, which then causes the liquid to vaporize, permitting it to be inhaled through an end of the electronic cigarette. When used, the tip of the device can light up simulating the effects of a traditional
cigarette. It should be clearly understood that substantial benefit may be derived from the use of alternative configurations of the internal components.

[0016] The filter section of traditional electronic cigarettes is discontinuous across a surface diameter thereof, and has a channel or aerosol passage therethrough, which leaves a visible hole in the end of the filter section. The vapor passes through the channel/passage in the filter section and out of the hole into the user’s mouth. One clear drawback of that construction is that an obvious hole in the filter section of the electronic cigarette is present, resulting in an unrealistic simulation of the filter of a traditional cigarette. Traditional tobacco cigarettes have a relatively smooth and solid end with no visible hole.

[0017] FIGS. 1 through 4 show an electronic cigarette 10 in accordance with one or more embodiments of the present invention. As shown in FIG. 1, the conduit 14 may cover the components of the electronic cigarette 10 which may include: a vaporizing unit (not shown), battery (not shown), unit containing liquid (not shown), integrated circuit (not shown), light source (not shown), and an end piece 28. The conduit 14 may also cover a portion or the entirety of the filter section 12. The conduit 14 may be constructed of polycarbonate or some other suitable material so that the conduit 14 may have a soft, flexible feel similar to the feel of a traditional tobacco cigarette.

[0018] As shown in FIGS. 2 and 4, a filter section 12 replicating that used in traditional tobacco cigarettes may be used with the present electronic cigarette 10. The filter section 12 is continuous across an entire surface diameter thereof (i.e., does not include a visible hole or passageway extending through a length thereof) and may be a porous material 52 inserted into the proximal end 16 of the conduit 14. An outer wrapper or label 30 may be adhered to the outer surface of the conduit 14 in order to provide the look of the filter of a traditional tobacco cigarette.

[0019] In previous configurations, the filter section 12 has typically had a channel/aerosol passage for allowing smoke/vapor to pass therethrough, leaving a very obvious visible hole. The filter section 12 of the present invention, however, is continuous across the entire surface diameter thereof and has the appearance of being fully enclosed; i.e., having no obvious visible hole. The filter section 12 would be porous to allow enough of the vapor to pass through, thereby simulating the amount of sucking required by the user to mimic a traditional cigarette filter, without providing an unsightly aerosol passage/channel therethrough as in prior art devices. The porous material 52 may be comprised of any suitable porous or membrane-type of material, including for example acidic fiber, polyurethane, ceremic, silicone, or any of a variety of other polymers or plastics. It may, by way of example, be disk or cylindrical shaped.

[0020] In this embodiment, the porous material 52 may have an outside diameter slightly less than the inside diameter of the conduit 14 which would allow the porous material 52 to be held in place by the friction created between the outer surface of the porous material 52 and the inner surface of the conduit 14. Alternatively, glue or other adhesive means could be utilized.

[0021] Referring to FIG. 3, in another embodiment, the filter section 12 may comprise a molded housing 34 that is inserted into a proximal end 16 of the conduit 14. The housing 34 may have an outside diameter slightly less than an inside diameter of the conduit 14 which would allow the housing 34 to be held in place by the friction created between the outer surface of the housing 34 and the inner surface of the conduit 14. For example, if the conduit has an inside diameter of about 7.7 mm, then the outside diameter of the housing 34 would be slightly less than 7.7 mm. The housing 34 may also have an annular flange (not shown) at its proximal end to help hold the housing 34 in place within the conduit 14. In this configuration, the annular flange would abut the proximal end of the conduit 14 and would have the same outside diameter as the outside diameter of the conduit 14 so that the electronic cigarette 10 has a uniform outside diameter throughout its entire length. The housing 34 may be made of silicon or other similar suitable material so that it has the same soft pliable feel of the filter of a traditional tobacco cigarette. In this embodiment, the filter section 12 may also comprise a porous material 52; e.g. a porous molded disc, acidic fiber, or other suitable material that may be inserted into a proximal end 36 of the housing 34.

[0022] In this embodiment, the porous material 52 may have an outside diameter slightly smaller than an inside diameter of the housing 34 so that the porous material 52 may be held in place by the friction created between the outer surface of the porous material 52 and the inner surface of the housing 34. (Alternatively, glue or other adhesive means could be utilized.) The housing 34 containing the porous material 52 may then together be inserted into the proximal end 16 of the conduit 14. It should also be clearly understood that substantial benefit may also be obtained from the porous material 52 being integral to the housing 34 that is inserted into the proximal end 16 of the conduit 14. It should also be understood that further substantial benefit may be achieved from a porous material 52 having an alternative configuration than a disc shape.

[0023] It should be noted that it would also be possible to provide a filter portion 12 wherein the material inserted within the conduit or housing is substantially non-porous, and wherein the substantially non-porous material is positioned within the housing or conduit so that venting of the vapor is permitted around a circumference thereof. Such a configuration would also provide the benefit of providing a filter section that is continuous, and that lacks the telltale passageway characterizing prior art electronic cigarette.

[0024] The foregoing description is provided to enable any person skilled in the relevant art to practice the various embodiments described herein. Various modifications to these embodiments will be readily apparent to those skilled in the relevant art, and generic principles defined herein can be applied to other embodiments. Thus, the claims are not intended to be limited to the embodiments shown and described herein, but are to be accorded the full scope consistent with the language of the claims, wherein reference to an element in the singular is not intended to mean “one and only one” unless specifically stated, but rather “one or more.” All structural and functional equivalents to the elements of the various embodiments described throughout this disclosure that are known or later come to be known to those of ordinary skill in the relevant art are expressly incorporated herein by reference and intended to be encompassed by the claims. Moreover, nothing disclosed herein is intended to be dedicated to the public.

1. An electronic cigarette comprising:
   a conduit adapted to contain internal components of an electronic cigarette device; and
   a filter section located within a proximal end of the conduit;
wherein the filter section comprises a porous material dimensioned to allow vapor passage therethrough; and wherein the porous material is continuous across an entire surface diameter thereof.

2. The electronic cigarette of claim 1 wherein the porous material comprises an acidic fiber.

3. The electronic cigarette of claim 1 wherein the porous material directly contacts an interior surface of the conduit.

4. The electronic cigarette of claim 1 wherein the filter section comprises:
   a housing inserted into the proximal end of the conduit; and
   a porous material positioned within the housing.

5. The electronic cigarette of claim 3 wherein the porous material frictionally engages the interior of the conduit.

6. The electronic cigarette of claim 4 wherein the housing frictionally engages the interior of the conduit.

7. The electronic cigarette of claim 3 wherein the porous material is disk shaped.

8. The electronic cigarette of claim 4 wherein the porous material is disk shaped.

9. The electronic cigarette of claim 4 wherein the housing is comprised of silicon.

10. The electronic cigarette of claim 1 wherein the conduit is comprised of polycarbonate.

11. An electronic cigarette comprising:
    a conduit adapted to contain internal components of an electronic cigarette device; and
    a filter section located within a proximal end of the conduit; wherein the filter section comprises a porous material dimensioned to allow vapor passage; wherein the porous material is continuous across an entire surface diameter thereof; wherein the porous material comprises an acidic fiber; and
    wherein the porous material directly contacts an interior surface of the conduit.

12. The electronic cigarette of claim 11 wherein the porous material frictionally engages the interior of the conduit.

13. The electronic cigarette of claim 11 wherein the porous material is disk shaped.

14. The electronic cigarette of claim 11 wherein the conduit is comprised of polycarbonate.

15. An electronic cigarette comprising:
    a conduit adapted to contain internal components of an electronic cigarette device; and
    a filter section located within a proximal end of the conduit; wherein the filter section comprises:
    a housing inserted into the proximal end of the conduit; and
    a porous material positioned within the housing; wherein the filter section comprises a porous material dimensioned to allow vapor passage; wherein the porous material is continuous across an entire surface diameter thereof; wherein the porous material comprises an acidic fiber; and wherein the porous material directly contacts an interior surface of the conduit.

16. The electronic cigarette of claim 15 wherein the housing frictionally engages the interior of the conduit.

17. The electronic cigarette of claim 15 wherein the porous material is disk shaped.

18. The electronic cigarette of claim 15 wherein the housing is comprised of silicon.

19. The electronic cigarette of claim 15 wherein the conduit is comprised of polycarbonate.

20. The electronic cigarette of claim 18 wherein the conduit is comprised of polycarbonate.